I CLAIM:

1. A transponder receiver for detecting different radio frequency (RF) interrogation mode signals having relatively wide and narrow bandwidths about a common RF center or carrier frequency, comprising:

a front end stage having an antenna input adapted to connect with an antenna responsive to signals over a RF band that includes the different interrogation mode signals, a preselector for amplifying the signals input by the antenna and including a wide band RF filter having a pass band sufficient to pass both the wide and the narrow bandwidth interrogation mode signals about said RF center frequency, and a mixer for converting signals output by the preselector to frequencies within an intermediate frequency (IF) band;

a first IF channel coupled to an output of the front end stage and including a narrow band IF filter having a pass-band of sufficient width for passing first IF signals corresponding to the narrow bandwidth interrogation mode signals, while rejecting signals corresponding to undesired interfering signals at frequencies in the vicinity of the narrow bandwidth interrogation mode signals;

a second IF channel coupled to an output of the front end stage and having a wide band IF filter with a pass band of sufficient width for passing second IF signals corresponding to the desired wide bandwidth interrogation mode signals; and

processor means coupled to the first and the second IF channels for demodulating and processing the first and the second IF signals.

2. A transponder receiver according to claim 1, wherein said first IF channel includes means for amplifying pulse amplitude modulated interrogation signals.

3. A transponder receiver according to claim 1, wherein said first IF channel includes means for amplifying and limiting phase shift keyed interrogation signals.

4. A transponder receiver according to claim 1, wherein said second IF channel includes means for amplifying and limiting spread spectrum modulated interrogation signals.

5. A transponder receiver according to claim 1, wherein said second IF channel includes means for producing digitized signals in response to analog spread spectrum signals applied to an input of the converter.

6. A transponder receiver according to claim 5, including a quadrature demodulator coupled to an input of said converter, and a pair of matched digital filters coupled to corresponding outputs of the demodulator.

7. A transponder receiver according to claim 1, wherein said first IF channel is coupled to the output of said front end stage through the wide band IF filter of the second IF channel.

8. A transponder receiver according to claim 1, wherein the wide band RF filter of said preselector has a 3-dB bandwidth of about 20 MHz.

9. A transponder receiver according to claim 1, wherein the pass band of the wide band RF filter of said preselector is centered at 1030 MHz.

10. A transponder receiver according to claim 9, wherein said wide band RF filter has about 65 dB rejection for RF signals at 1008 MHz and at 1052 MHz.

11. A transponder receiver according to claim 1, wherein the narrow band IF filter of the first IF channel has a 3-dB bandwidth of about 7.5 MHz.

12. A transponder receiver according to claim 11, wherein the narrow band IF filter has about 85 dB rejection at frequencies corresponding to RF signals at 1008 and 1052 MHz.

13. A multi-mode receiver for detecting desired radio frequency (RF) signals having relatively wide and narrow bandwidths about a common RF center or carrier frequency, comprising:

a front end stage having an antenna input adapted to connect with an antenna responsive to signals over a RF band that includes the desired RF signals, a preselector for amplifying the signals input by the antenna and including a wide band RF filter having a pass band sufficient to pass both of the desired wide and narrow bandwidth signals about the center RF frequency, and a mixer for converting signals output by the preselector to frequencies within an intermediate frequency (IF) band;

a first IF channel coupled to an output of the front end stage and including a narrow band IF filter having a pass-band of sufficient width for passing first IF signals corresponding to the desired narrow bandwidth signals, while rejecting signals corresponding to undesired interfering signals at frequencies in the vicinity of the desired narrow bandwidth signals;

a second IF channel coupled to an output of the front end stage and having a wide band IF filter with a pass band of

sufficient width for passing second IF signals corresponding to the desired wide bandwidth signals; and

processor means coupled to the first and the second IF channels for demodulating and processing the first and the second IF signals.

14. A multi-mode receiver according to claim 13, wherein said first IF channel includes means for amplifying pulse amplitude modulated signals.

15. A multi-mode receiver according to claim 13, wherein said first IF channel includes means for amplifying and limiting phase shift keyed signals.

16. A multi-mode receiver according to claim 13, wherein said second IF channel includes means for amplifying and limiting spread spectrum modulated signals.

17. A multi-mode receiver according to claim 13,

wherein said second IF channel includes means for producing digitized signals in response to analog spread spectrum signals applied to an input of the converter.

18. A multi-mode receiver according to claim 17, including a quadrature demodulator coupled to an input of said converter, and a pair of matched digital filters coupled to corresponding outputs of the demodulator.

19. A multi-mode receiver according to claim 13, wherein said first IF channel is coupled to the output of said front end stage through the wide band IF filter of the second IF channel.

20. A multi-mode receiver according to claim 13 wherein the wide band RF filter of said preselector has a 3-dB bandwidth of about 20 MHz.

21. A multi-mode receiver according to claim 13, wherein the pass band of the wide band RF filter of said

preselector is centered at 1030 MHz.

22. A multi-mode receiver according to claim 21, wherein said wide band RF filter has about 65 dB rejection for RF signals at 1008 MHz and at 1052 MHz.

23. A ~~transponder~~ multi-mode receiver according to claim 13, wherein the narrow band IF filter of the first IF channel has a 3-dB bandwidth of about 7.5 MHz.

24. A ~~transponder~~ multi-mode receiver according to claim 23, wherein the narrow band IF filter has about 85 dB rejection at frequencies corresponding to RF signals at 1008 and 1052 MHz.

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